

IN THE CLAIMS

1. (Currently Amended) A system for high speed data transmission comprising:

~~a large core multimode fiber optic cable;~~

a light source for transmitting data as a first light signal; ~~and~~

a lens having a focal length  $f$  for receiving said first light signal ~~[[light]]~~ from said light source, said lens being approximately said focal length  $f$  from ~~[[an]]~~ said exposed core of said large core multimode fiber optic cable,

a large core multimode fiber optic cable, comprising:

an exposed core having a core diameter, wherein a refractive index of said exposed core is substantially real to propagate said light signal with low loss, wherein a second light signal received from said lens at the exposed core is focused on and has a diameter approximately equal to ~~[[a]]~~ said core diameter of said large core multimode fiber optic cable to reduce excitation of higher order modes; and

a doped cladding layer around said exposed core of said large core multimode fiber optic cable that attenuates higher order modes generated in said large core multimode fiber optic cable to reduce pulse spreading effects that limit a length/data rate product, and

wherein said refractive index of said doped cladding layer includes a complex component that attenuates higher order modes such that a third light signal output by said large core multimode fiber optic cable includes substantially only lower order modes.

2. (Original)            The system for high speed data transmission as recited in claim 1 wherein said lens collimates said light signal to reduce an excitation of higher order modes generated in said large core multimode fiber optic cable.

3. (Original)            The system for high speed data transmission as recited in claim 1 wherein said light source is a diode laser.

4. (Original)            The system for high speed data transmission as recited in claim 1 wherein light source is a light emitting diode.

5. (Original)            The system for high speed data transmission as recited in claim 1 wherein said light source provides light having a wave length greater than 750 nanometers.

6. (Original)            The system for high speed data transmission as recited in claim 1 wherein said light source transmits data at greater than 10 gigabits per second.

7. (Currently Amended)    The system for high speed data transmission as recited in claim 1 wherein a signal level from said light source is launched to said large core multimode fiber optic cable at ~~greater than 20dBm~~ or more.

8. (Cancelled)

9. (Cancelled)

10. (Currently Amended) The system for high speed data transmission as recited in claim 1 further including:

a receiver coupled to an opposing end of said large core multimode fiber optic cable for receiving said transmitted data.

11. (Currently Amended) A method for increasing a length/data rate product for a large core multimode fiber optic cable comprising a doped cladding layer around an exposed core of said large core multimode fiber optic cable, wherein the exposed core has a core diameter, the method comprising the steps of:

providing a data transmission comprising a sequence of light pulses;

~~collimating light of said data transmission to minimize excitation of higher order modes in the large core multimode fiber optic cable;~~

focusing said light pulses onto an exposed end of a core of the large core multimode fiber optic cable such that a diameter of a light pulse is approximately equal to ~~[[a]]~~ the core diameter to minimize excitation of higher order modes in the large core multimode fiber optic cable ~~of the large core multimode fiber optic cable;~~ and

using the doped cladding layer to attenuate ~~attenuating~~ higher order modes of said light pulses as said data transmission propagates down the large core multimode fiber optic cable to reduce pulse spreading effects that limit a length/data rate product such that second light pulses output by said large core multimode fiber optic cable includes substantially only lower order modes.

12. (Original) The method for increasing a length/data rate product for a large core multimode fiber optic cable as recited in claim 11 further including using a lens to collimate and focus said light pulses to the large core multimode fiber optic cable.

13. (Original) The method of increasing a length/data rate product for a large core multimode fiber optic cable as recited in claim 11 further including a step of increasing a signal level of said data transmission to compensate for propagation loss thereby further increasing a transmission distance through the large core multimode fiber optic cable.

14. (Original) The method of increasing a length/data rate product for a large core multimode fiber optic cable as recited in claim 11 further including a step of using a core greater than 50 microns in diameter in the large core multimode fiber optic cable.

15. (Original) The method of increasing a length/data rate product for a large core multimode fiber optic cable as recited in claim 11 further including a step of using a step index fiber optic cable having a doped cladding layer for absorptive attenuation of higher order modes.

16. (Cancelled)

17. (Currently Amended) The method of increasing a length/data rate product of a large core multimode fiber optic cable as recited in claim 11 ~~[[16]]~~ further including a step of:

operating the large core multimode fiber optic cable to transmit data at greater than 10 gigabits per second.

18. (Original)        The method of increasing a length/data rate product of a large core multimode fiber optic cable as recited in claim 11, wherein said large core multimode fiber optic cable comprises:

~~17 further including a step of using~~ a step index large core multimode fiber optic cable.

19. (Cancelled)

20. (Cancelled)